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**CONCEPTS OF INFORMATION  
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General George S. Patton and the  
Third Army Information Service,  
August-December, 1944.**

A Monograph  
By  
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Armor



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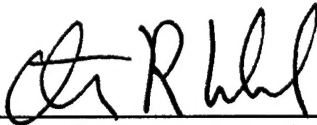
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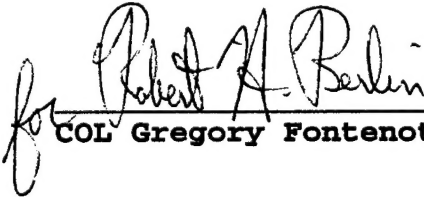
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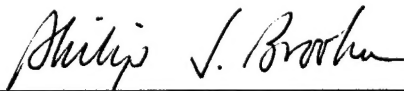
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## ABSTRACT

**CONCEPTS OF INFORMATION WARFARE IN PRACTICE: GENERAL GEORGE S. PATTON AND THE THIRD ARMY INFORMATION SERVICE, AUGUST-DECEMBER, 1944** by Lieutenant Colonel Dean A. Nowowiejski, USA, 52 pages.

This monograph looks for historical examples of information warfare in order to gain insight into its current practice. It first describes key elements of the concept of information operations, particularly as they relate to battle command. It then explores how George S. Patton and his Third Army Information Service demonstrated those ideas, and how their example offers direction for current developments in information warfare.

Key sources used in research included emerging doctrinal literature on information warfare, biographical information on the professional development and command qualities of Patton, and after action reports of the Third Army and 6th Cavalry Group, the unit that constituted the Army Information Service.

This monograph found that Patton aggressively sought information advantage as a battle commander, and that he demonstrated the key qualities of vision and intuition. The Third Army Information Service developed a relevant common picture of the battlefield by the expanding the instrument of directed liaison.

What needs emphasis in current concept of information warfare is the improving the ability of commanders and staffs to process information. We must reemphasize the human dimensions of information operations through refined professional development.

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As the United States Army transitions from the Cold War era to the 21st Century, Army leaders and military theorists alike point the way to a future encompassed by revolutionary changes associated with the Information Age. Theorists posit that warfare in general is going through a revolution similar to those caused by gunpowder, railroads, or the machine-gun--all fundamental changes brought on the ways of making war by leaps in technology. The motive force today is to be the computer microprocessor, the technological change the quantum leaps in data processing that the computer affords, and its consequences on weapons systems, command and control devices, and sustainment. Some of the evidences which accompany the current waves of change are the increasing use of precision-guided munitions, remote reconnaissance, surveillance, and target acquisition devices, and high technology communications systems.<sup>1</sup>

## **I. Concepts of Information Warfare and Battle Command**

**The Need for Change.** The Army leadership, led by Generals Gordon R. Sullivan, Chief of Staff, and General Frederick Franks, Training and Doctrine Commander, has valiantly attempted to lead the army toward becoming a learning organization, capable of withstanding the budgetary constraints brought about by the end of the Cold War, yet ready to perform more and difficult missions. Many senior

leaders agree that advancing technology must be paralleled by the creation of new warfighting concepts, of new doctrine. General Sullivan, in particular, desired to foster a mental framework within Army leaders that will respond well to change and uncertainty.

**Information Operations.** Two of the governing concepts that accompany this movement to accept change are information operations and battle command.<sup>2</sup> Information operations present a mental framework for the military to cope with the changes accompanying the Information Age, emphasizing the ability of a commander to protect his own decision-cycle, while attacking that of his adversary. The Army seeks to win in any potential conflict by gaining a fundamental power advantage over an enemy by its ability to control and exploit mountains of data. It seeks to do so with the speed of the computer.

Battle command is leading, deciding, and motivating soldiers, a repackaging of many of the fundamental concepts of command that have existed for centuries, but with new emphasis. Battle command operates within the setting of information operations. When properly conducted, information operations will facilitate and protect the ability of a commander to practice battle command.

The overall objective of information operations and battle command are to reduce fog and friction in warfare,

and to obtain more combat power from available resources.<sup>3</sup> Information is seen as power, as an essential dynamic of the battlefield. This explains the desire for the friendly to have more information, and to protect his ability to use it, while reducing his adversary's information capability.

The fog of war exists because of uncertainty. Information lessens uncertainty, and therefore reduces fog. The characteristics of combat in the future will be greater dispersion, avoidance of contamination, controlled tempo, precision-strikes at great range- overall a highly synchronized attack. Synchronization created using information reduces the fog of uncertainty in battle.<sup>4</sup>

A primary goal of information operations in reducing uncertainty is to achieve force coherence through shared knowledge. The friendly force synchronizes operations because the friendly commander achieves a more efficient decision-making process and execution of missions than the adversary through the proper manipulation of information. Information operations require a totally new mindset, encompassing everything that the unit does with information, with the overriding objective of efficiency. Proper use of information is to improve unity of effort, reduce planning and coordinating time, and reduce barriers in communication and understanding. Information clarifies all, unites all through its sharing.<sup>5</sup>



Shared information defines battlespace. As it relates to information operations, battlespace includes, "All sources of information that contribute to the commander's decision-making process."<sup>6</sup> Commanders dominate their battlespace through a shared common perception of information. The size of friendly force battlespace is determined by the unit's ability to acquire and dominate the enemy within that space by means of fire and maneuver. Information processes assist the collection, processing, delivery, and presentation of operational situations, so that the commander can see throughout his battlespace, and communicate his intent there. The friendly commander attempts to restrict the size of the adversary's battlespace, while at the same time extending his own, to achieve battlespace dominance by the control of information. Thus, battlespace is a term closely allied with information operations; battlespace dominance is the goal.<sup>7</sup>

All of these requirements of information operations require soldiers with special qualities. The demands of the Information Age create a need for soldiers and leaders who are *adaptable* to rapidly changing situations, with *intuition* to overcome gaps in information, and *imagination* in processing what information is available to them. The demand for highly qualified soldiers has not lessened because of the quantum leap in information technology. Army

doctrine governing its transition to the future makes highly qualified soldiers are essential.<sup>8</sup>

**Battle Command Concepts.** The tempo of operations has and will continue to increase. Leaders must make decisions rapidly, and there will always be a certain amount of uncertainty, principally because there is not enough time to keep up with the pace of operations. This increases the pressure for leaders to be able to come to a decision rapidly, based upon limited evidence. Battle command emphasizes many of the same qualities mentioned above, basically the requirement to have a leader who knows what he wants to do, has the will to do it, and the intuition concerning which direction to take.<sup>9</sup> The battle commander needs an agile mind to deal with the flux of information confronting him, and the discipline not to be distracted by irrelevant information or pursuits that do not contribute to the mission.<sup>10</sup>

The requirements to lead, decide, and motivate are not new to the practice of command. These elements are timeless, and can be readily found in the great captains through history. These commanders led by the force of their will, and used intuition to fill in the gaps of their information. Information operations add new emphasis to affecting the ability of the enemy commander to exercise his battle command, increase his battlespace, and operate his

information systems. The quantity and quality of relevant data are designed to increase. So is the volume of that data. These changes affect the setting of command, and the limit of its execution. It is the combination of old factors into a new environment that calls forth the idea of battle command during information operations.<sup>11</sup>

A particular idea that stems from experience, but receives continuous emphasis for information operations is the criticality of the commander being at the right place at the right time on the battlefield, exerting his personal force to influence the outcome. This requirement speaks to the importance of the commander, of his person, of his will, of his human influence. This personal significance has everything to do with the timeless human qualities of combat, and the particular individual qualities required of a successful commander. The information age battle commander has increased capacity to be at the critical place in time because he is connected to a common grid of information that answers his particular requirements, provides him with timely information, speeds him there while commanding on the move. The present battle commander's human qualities are enhanced, not determined, by technology.<sup>12</sup>

The question remains, "How does the battle commander obtain the special qualities of adaptability, intuition, and

imagination which are required?" Since they are qualities of the person, they must be individually inculcated. Experience points to the professional development process, particularly the commander's education, as a likely source for the enhancement of these qualities of command. Certainly, no one is born with them, because intuition alone is a quality that can only be developed by experience. Intuition is the ability to form the remaining elements of experience from a partially completed mental picture, based upon seeing the elements of the completed picture before. A wealth of experience makes the elements of the picture more easily recognizable. Battle commanders are developed through a long process of education.<sup>13</sup>

**Battle Command Application** The concepts of battle command and information operations interrelate in application so that the commander is able to tailor his information needs to his own requirements and style of command. Information systems offer the capability to manage the acquisition and handling of data in new ways, so that by using a dependable system, the commander can arrive at a relevant, timely, and clear picture of the situation, the relevant common picture. The commander can set the parameters on information systems so that he receives the information he wants, such as Commander's Critical Information Requirements (CCIR) and Priority Intelligence

Requirements (PIR). These parameters are tools to establish the relevant common picture. They can be reprioritized as the commander's interpretation of the battle changes, as his intent changes. In this way information operations offer a system of integrated support for battle command.

Successful information operations require maintenance of high tempo, to shape the battlespace. Maintenance of high tempo operations increasingly means command on the move. In this context, tempo means speed. The Information Age commander establishes a tempo of operations that exceeds that of his adversary, so that friendly systems gather and process critical battle command information faster than the enemy commander.

We can ultimately control the enemy decision cycle through the proper and timely use of information. When active combat is apparent, the intensity of information operations picks up. The idea is for the friendly commander to establish an operational pace that exceeds the speed of any that his adversaries have to offer, that will always defeat them because they cannot react fast enough to out moves.

The battle commander will do all of this, using digital terrain data, while commanding on the move and moving from one decisive point to the other on the battlefield. He will not be tethered to a command post. This freedom to command

rapid tempo operations on the move ultimately results in the expansion of friendly battle space as we are capable of acquiring and dominating our opponents over greater geographic and information area.<sup>14</sup>

The most imaginative commanders, like Napoleon, Foch, Rommel, Montgomery, and Patton have employed the technique of using liaison officers as an extension of their own eyes and ears, the "directed telescope." Liaison still holds this potential to be an extension of information operations. All operations require units to understand and execute the commander's intent. The human contact and amplification of liaison will expand the scope of information operations, because the "directed telescope" expands the realm of the relevant common picture. There are still fundamental difficulties in communicating orders, reports, and commander's intent. These will exist until the technologies of communication are perfect, and perfect knowledge of the battlefield exists. Until that time, liaison will fill its traditional role as an effective element of battle command.<sup>15</sup>

Liaison officers represent the retention of the human element in information operations, because technology is imperfect in fostering human communication and understanding. The same qualities of intuition, ingenuity, and adaptability that make a successful battle commander

also make a useful liaison officer. That is because the nature of the human element in information war is much the same for both commander and liaison officer. There remains enough uncertainty to call for willful judgment by the commander, and useful explanation and representation by the liaison. As conditions change rapidly on the battlefield, both the commander and his representative must adjust. Both of these roles reduce uncertainty, fog, and friction in operations, and both rely on common human qualities in their participants.

## **II. General George S. Patton as the Battle Commander**

General George S. Patton, Jr., as a corps and army commander during World War II, demonstrated many of the qualities expected of today's battle commander. He was an adaptive, creative problem-solver and visionary leader. Patton believed in the commander, "as a living presence, an all-pervading, visible personality," who dominated his army by the force of will. To Patton, the dominant factor in war was this battle commander. It is important to remember that he also emphasized the human elements of combat in this commander. The force of personality was expressed through individual human qualities cultivated over time.<sup>16</sup>

**Individual Qualities and Education** General Patton was an exceptional student of the military art, with a lifelong

habit of professional study. His private papers contained extensive notes, writings, and speeches that dealt with the subject of war, and how to apply the military art on future battlefields. Patton's emphasis in this developmental study over a lifetime was the subject of leadership. He was single-minded in preparing himself for this role, and his mastery of weapons, tactics, military history, and battle psychology was the way to become a better leader. Patton devoted the years between World War I and II to an arduous, systematic program of preparation to lead soldiers in battle. This self-education eventually marked him with the qualities required of a battle commander.<sup>17</sup>

Patton's focus in study was on the human element of combat. History was a tool to teach lessons of leadership. Patton studied human reaction to battle. His pre-Normandy Letters of Instruction to the Third Army were a compendium of his philosophy of leadership acquired through these years of study. They shared his professional thought with his subordinate commanders in pithy comments that have been retained as a list of battle proverbs. These letters emphasize the role of the commander, who must be seen at the front, who shares the pain of battle with his soldiers. These letters are not about weapons and technology; they deal with men's struggle with fear and the need for leadership.<sup>18</sup>



Patton demonstrated consistent concern for the condition and morale of his troops. Failure to care for soldiers was grounds for relief for his subordinate commanders. Caring for his men in practical ways, like food, clothing, and shelter, was a top priority for Patton. Their condition was part of the essential elements of information that he evaluated before operations, and was not left to chance.

Concern for his men reflected the inner conflict of temperaments that took place within Patton. He cultivated the rough exterior, and wore his warrior face as an external influence on those around him. Inwardly, Patton had a softer side that was kind and quite emotional. He is remembered for his loyalty to subordinates. There was a clear sense of family, of belonging in his staff. This evidence of the sentimental side of Patton connects to his concern for the human element. The sentimental Patton thrived in the human dimension, and his concern for soldiers is a primary evidence of it.<sup>19</sup>

Patton demonstrated vision and intuition in battle, but these qualities were founded upon his professional study.

His G-2, Oscar Koch, said:

If one can call anticipation of enemy reactions based on a lifetime of professional training and on thinking and application "intuition," he had it. He was a professional soldier, a student of history, a planner all his life.<sup>20</sup>

Intuition is exactly that: the ability through experience to recognize familiar patterns and to complete them. Patton had the habit of thoroughly studying a situation, and then decisively acting upon available information. Clausewitz referred to this quality as *coup d'oeil*, the inner light, that quickly recognizes the truth of a battlefield situation. He avoided the unnecessary, quickly grasped the broader implications of the situation, and made rapid decisions. He was remembered by his staff for consistently making the right decisions.<sup>21</sup>

He had long term vision for operations. To illustrate this, Patton studied the maps of France before going to the continent, memorized them, and anticipated those points where he expected battle. He pointed his G-2's intelligence preparation toward Metz, which is exactly where the Third Army eventually ended up. The best known example of Patton's vision was his anticipation of the need to turn the Third Army to the North in reaction to the German counteroffensive of December 1944. Patton habitually kept his staff planning two operations ahead, all in keeping with his anticipation of events. Patton demonstrated vision and intuition in conducting military operations.<sup>22</sup>

Although Patton was attuned to the human dimension, he did not ignore the advances of technology. He became one of

the foremost experts on tank warfare during World War I, when tanks were a new technology. He adapted quickly to control of maneuver forces by radio at the outset of World War II, and developed sophisticated radio monitoring systems within his command. These monitoring systems were modeled after the British J service, and provided intelligence on enemy signals transmissions, while at the same time a check on friendly radio security. Patton also quickly adapted to close air support, quickly achieving an innovative integration of air-ground assets with the XIX Tactical Air Force. He also readily adapted the aircraft as a command and control vehicle, using small aircraft to monitor the rapid advances of his forces during August-September 1944, and for liaison purposes. There is therefore much evidence that Patton was not hesitant to use new technologies, so his emphasis on the human dimension of warfare did not come at the expense of readiness to adapt to evolving technology.<sup>23</sup>

General Patton possessed the knack for leading from the front, for being at the right place at the right time, to influence the outcome of battle decisively. He acted according to the precept of battle command requiring exertion of will at the key point on the battlefield, that requires mobile communications, and the ability to give orders in person. Patton gave most of his orders orally,

and exerted a unique presence of person that is said to have sparked the aggressiveness of his entire Army. He would conduct preliminary map study to anticipate the decisive points where battle would occur. According to his own proclamation, Patton was extremely successful at predicting outcomes both in Sicily and in Western Europe. Patton went into the face of danger to inspire his troops, and was always present at key attacks. He was constantly in motion in order to communicate his intent to the entire Army, and to gain knowledge for himself at the decisive point.<sup>24</sup>

**Patton and Information** General Patton exhibited an intense desire for battlefield information in general, and for intelligence in particular. One of his coordinating staff officers wrote, "Detailed knowledge and thorough preparation characterized every aspect of Patton's operations." He showed an obsessive concern for reconnaissance as early as the 1940 and 1941 maneuvers. In a time when intelligence was an often ignored and less esteemed part of the staff, Patton devoted great attention and credence to the work of his intelligence section. Patton had his intelligence staff conduct most thorough terrain studies, and they fabricated terrain models pertinent to current or planned operations to be displayed in the Third Army war room. Patton had a theater-wide vision for enemy divisions, and would not conduct an attack

until all enemy divisions that might affect the operation were located. His concern for detailed information, including enemy and terrain intelligence, compares in scope and intensity to the volume of information envisioned to be within information operations.<sup>25</sup>

There was a system in Patton's concern for battlefield information. It related directly to his method of defeating an enemy, which he recounted as four tenets:

First--surprise; find out what the enemy intends to do and do it first.  
Second--rock the enemy back on his heels--keep him rocking--never give him a chance to get his balance or build up.  
Third--relentless pursuit--a *l'outrance* the French say--beyond the limit.  
Fourth--mop him up.<sup>26</sup>

Much

of Patton's motive for information is captured within the second tenet and is related to his desire to maintain a high battlefield tempo. Information was a means to obtain speed, the speed required to rock the enemy back on his heels, and to prevent him from ever recovering. Patton wanted to use information as a tool similar to that envisioned in information warfare where the adversary decision cycle is disrupted and the friendly information system protected. This has commonly been referred to as, "getting inside the enemy decision cycle." This explains his concern for far reaching reconnaissance, often 150 miles to the front and

flanks of his army, and for his need to maintain speed and mobility. It was all part of fulfilling the tenet of rocking the enemy back on his heels, of defeating his decision cycle by speed.<sup>27</sup>

Patton used imagination in his intelligence gathering. He used the XIX Tactical Air Command not only to provide air cover for his advancing columns, but also as an intelligence gatherer and communication asset. It is unclear from older references just what the role of ULTRA was in Patton's decision-making, since most of the secondary sources, and his Papers, were published before ULTRA was declassified. Clearly ULTRA helped Bradley and Patton to anticipate the German counterattack toward Mortain aimed at cutting the line of communications as the Third Army broke out. There is anecdotal evidence that when Patton discovered the significance of the ULTRA intercepts, he took the intercept officer into his inner circle of staff. Patton gathered information from whatever source he could in his effort to win.<sup>28</sup>

### **III. The Third Army Information Service**

A key element in Patton's search for information was his unique creation, the Third Army Information Service.<sup>29</sup> Motivated by his intense desire for information, and the attention that he gave to reconnaissance and intelligence, the Third Army Information Service (AIS) was Patton's answer

to a shortfall within Third Army during preparations for Normandy operations. By that time, War Department tables of organization allowed for each Army to have a Signals Information and Monitoring Unit (SIAM) to provide signals and liaison information to the Army commander. Patton did not have one of these companies, and would not for some time, so he converted one of the Third Army's Cavalry Groups, the Sixth, to serve the same purpose. In this way, Patton demonstrated an innovative approach to obtaining battlefield information.

**Army Information Service Concepts** Patton's creation and use of the Third Army Information Service foreshadowed many of the important concepts of information operations today. In principle, the AIS helped him to execute his vision for operations, to enforce his will in a timely manner, and to practice battle command. The AIS followed naturally from the principles of command and operations that Patton had realized through his long course of self-development. In effect, the AIS helped to synchronize operations within the Third Army through effective broadcast information, and worked toward a relative common picture of the battlefield for the Army, corps, and division headquarters. It fostered many of the same effects sought by current battle command architecture.

Patton hoped to solve the basic problem of late and incorrect information. By the time information from the front reached Army headquarters through normal reporting channels, it had taken a period of some 10 to 12 hours. Not only was the information delayed, but key details were lost in transmission. Patton said, "Information is like eggs, the fresher the better." The Army Information Service was created primarily to keep the Army commander and his staff informed of the progress and situation of his own troops. It was not created as an enemy intelligence gathering activity, an important distinction from the focus of many information systems today. The Army Information service created a reporting system so that information detachments positioned with front line battalions would report from their command or observation posts directly to a processing center at Army forward headquarters. This direct line of communication fulfilled the intent of speeding information to Patton.<sup>30</sup>

The basic concept of AIS duplicated SIAM, which itself was drawn from the British Phantom services under Montgomery. All have been described as systems for commanders to practice the "directed telescope" of allowing others to be their eyes and ears in providing critical battlefield information. The Phantom service included both radio signals monitoring, both friendly and enemy, and a



system of liaison officers to provide information and to communicate commander's intent. SIAM duplicated this structure, and certain evidence points to the fact that SIAM probably was affected by Patton's ideas, too, since it originated from Seventh Army operations in Sicily. Patton commanded the Seventh Army there.<sup>31</sup>

As the Army Information Service unit, the Sixth Cavalry Group was composed of the 6th and 28th Mechanized Reconnaissance Squadrons and the Group Headquarters. In practice, the AIS operation, code named PLAN UNICORN, only called for one of the squadrons to be involved at a time. During the intensely mobile operations in August and September 1944, when the Third Army was spread from Brest in the Cotentin peninsula as much as 400 miles west into France, the AIS mission required augmentation from the second squadron in the group. The Sixth Cavalry Group treated this as a rotating mission, with the squadron not employed in AIS duties performing the mission of Army reconnaissance or command post security.<sup>32</sup>

The basic organization of the AIS turned each of the cavalry reconnaissance platoons into an information detachment positioned at a subordinate division (sometimes combat command or regiment) headquarters. The troop headquarters constituted an information detachment that initially was held in reserve, but came in practice to be a

key link in the reporting process. Initially, the cavalry reconnaissance platoons reported directly to Group headquarters, which was co-located with the Army forward command post. As the Group headquarters became unable to monitor, control, and process information from as many as 9 to 12 information detachments during the breakout, the standard operating procedure changed to introduce the troop headquarters at corps level into the reporting and processing channel. All detachments in a corps were on the same frequency, and this allowed for flank to flank coordination through monitoring, and for the troop headquarters at corps to serve as an intermediate coordinating and processing agency.

Three fundamental purposes underlay the operation of the AIS. The first was to create a rapid communication channel, and has been discussed. The second was to create a system to monitor radio nets, both friendly and enemy. The third was to establish a system of liaison patrols. Each cavalry platoon with a front line division was broken into two sections, a Headquarters and Monitoring Section, and a Liaison and Observer Section. The former had the radio monitoring mission; the latter the liaison mission, including periodic contact with the Division G-2 and G-3 to obtain updates. In practice, the radio monitoring mission proved to be less productive, so by 15 August 1944, after

scarcely two weeks of operation, the Group focused all assets on the liaison mission. It is unclear what impact this had on the structure of the Headquarters and Monitoring Section with each division information detachment, but some were probably detailed to messenger duty.<sup>33</sup>

The structure of the AIS established an interesting dynamic. It placed a Cavalry platoon leader in position to talk directly to division, regimental, or combat command commanders, G-2's, and G-3's, and to report his findings directly to Army headquarters. Needless to say, this created discomfort with those units assigned information detachments, and those officers designated to run them. Patton was especially sensitive to the potential for derogatory information to be reported through AIS channels, and for subordinate commands to deny AIS personnel access to information for that reason. To overcome this potential, each information detachment was accompanied by the Group Commander upon its first introduction to a division or corps, and the detachment commander carried a letter of introduction from the Army commander himself. The detachments were instructed to report facts only, and to avoid disparaging comments on the units to which they were assigned. Their impressions, good or bad, were to be kept to themselves. The intent was to avoid such a vertical liaison system as Joffre used in the First World War, where

the appearance of a command liaison officer from higher headquarters was often perceived as being tantamount to potential relief.<sup>34</sup>

Along with the liaison function at the division level, the Army Information Service also included the operation of a messenger service and radio relay. Both of these functions assumed critical importance as units became widely separated during the breakout and pursuit. In some cases, the only way for Patton to talk to subordinate units, particularly the VIII Corps and 6th Armored Division around Brest, was through AIS radio channels or messenger. The after action reports state that in this mode, the most reliable means of communication the Army had to communicate with advancing corps was through the messenger service. The same armored car that served as the radio relay, also became a message transfer center. AIS messengers traveling in jeeps took great risk because of the numerous bypassed enemy elements that still remained in Brittany. Orders and reports back and forth from Army headquarters literally became the province of AIS messengers until operations stabilized in September 1944. Liaison was important enough a function that Patton also dedicated a significant portion of his L-5 light planes to fly them to subordinate headquarters to obtain the required twice-daily reports there.<sup>35</sup>

The use of the Army Information Service to share command reports anticipated the current idea of broadcast information.<sup>36</sup> As mentioned, the corps information service net became a means of shared information among all divisions within the corps. Even though the intent was to provide the Army commander with information, in practice the corps headquarters used information detachments to obtain information for their own use. In effect, a reconnaissance troop, with its subordinate platoons was converted into a friendly force information agency for the corps.<sup>37</sup>

This use as a command information channel was most prominent when the structure of the corps wire communications could not be laid down, as in August 1944. When movement stabilized during the Lorraine campaign, the Information Service became a means of redundant communication, and its attention focused on providing the front line battalions and regiments with the "big picture" from the corps and army perspective. In all situations, the AIS served the function of horizontal integration, what information operations doctrine calls "nonhierarchical information flow," to bring together elements within the same unit into a common plane of information.<sup>38</sup>

Still, the overall goal of making the Army headquarters more knowledgeable was achieved. Patton and the Army staff were sometimes even better informed than their subordinate

corps, even after corps began to monitor AIS messages. Patton was certainly better informed than Bradley at Army Group because of Patton's use of the AIS. The Theater General Board concluded after the war that the AIS was most useful in rapidly obtaining reliable information during fast-moving situations. Patton achieved the effect that he had sought, to be informed in a timely manner of the situation at the front.<sup>39</sup>

**The Significance of Liaison in the Army Information Service** The use of liaison officers was the most effective element of the Army Information Service. The Theater General Board after the war, when reviewing Army Tactical Information Services used throughout the theater (including British Phantom; American SIAM, and the AIS), recommended that only the liaison elements, not the signals monitoring, be retained in the future. This section will explore some of the utility of this liaison exchange, and treat it as fundamentally a human interaction, fostered by technological means, such as radio or computer terminal.<sup>40</sup>

Liaison works because it facilitates the human processes of communication and information processing. Success depends on the capability of the individual liaison officer in person-to-person contact to convey his commander's intent and to receive key information. The qualities required of liaison officers in the Third Army

Information Service closely parallel the list of qualities that Patton exhibited as commander, or that are expected of the battle commander of today. Patton placed Cavalry lieutenants in position to receive reports of situation from division commanders, G-2's, and G-3's. The qualities of tact and acute perception were clearly called for. So were the qualities of imagination and resourcefulness, since much of the officer patrol work was done in areas not completely secured from the enemy (the Sixth Cavalry did lose officers and men to the enemy while performing these information functions). The liaison officer had to know what information to seek, and what to report; demands that tested his intuition.

Patton was not alone in his confidence in these junior officers. General Eisenhower added an Appendix to the General Board report that endorsed their recommendation to continue the Army Tactical Information Services, but took pains to point out that the demands of liaison were to be filled by officers of the line, not officers from the technical services. He too envisioned this officer as highly competent, and the "authoritative director of the effort" of gathering and processing information as the AIS assisted the human process of command.<sup>41</sup>

Patton intended that his use of AIS liaison would help to foster understanding and cohesiveness in his Army. When

the technological systems of wire and radio communication broke down, liaison provided the critical backup (the same may be true in the future when technologically-intense systems malfunction). The soldiers who served as critical messengers between Army and corps, using jeeps and motorcycles in Brittany, were AIS liaison. When operations slowed down in September 1944, their use was only intensified.

Information in its raw form is only useful after evaluation and interpretation. That was the critical role that liaison fulfilled. The soldiers of the AIS provided supplementary and corrective information, assuming the role of command information and situation clarification. The Sixth Cavalry men were the ambassadors of Patton's ethic, of the paramount importance of clear common understanding and teamwork.<sup>42</sup>

**Patton's Mark on the Army Information Service** It is important to understand how Patton's concept of warfare influenced the creation and operation of the Army Information Service. Patton emphasized the teamwork of his entire Army toward the assigned objectives, operating within his intent. The Third Army was noted as, "An entire army galvanized by the dynamism of one man." Patton's use of the AIS closely equates to the idea of the friendly information system (FIS) of information operations.<sup>43</sup> The FIS supports



and is focused on the commander's understanding; the AIS focused on providing Patton rapid information. The Sixth Cavalry Group headquarters made a point of reviewing corps and division orders to direct the liaison patrols of the subordinate information detachments. Patton intended to act so rapidly that his enemy could not successfully counter.

FIS affects the adversary information system. Similarly, when during the Lorraine campaign the detachments began to report intelligence information that caused confusion in the picture at Army level, their reporting was limited to the corps detachments with Corps G-2 approval. All of these facts act within Patton's desire that the AIS foster the army common picture that he wanted to generate, so that information energized the entire force toward his intent.<sup>44</sup>

That Patton sacrificed one of his cavalry groups to accomplish this mission speaks directly to the importance of information in his concept of warfare. He dedicated significant assets of the Sixth Cavalry Group from August until early December 1944 to the AIS mission. Finally, those elements, with their combat power, became more critical as a mobile striking force, and their AIS mission was discontinued. That it existed for so long is testimony to Patton's penchant for timely friendly force information.

Patton was a cavalrymen himself. He knew the value of cavalry, and Cavalry Groups were a limited and important asset at the army level. Patton said that "you can never have too much reconnaissance," and saw the functions of cavalry as a key part of his Army intelligence apparatus. His penchant for intelligence has already been discussed. The AIS met his needs for battle command.<sup>45</sup>

**Patton's Staff Concepts Paralleled Those of the Army Information Service.** Patton sent his staff in search of information; that was a standing ethic. So was common understanding of the situation. Staff officers were required to visit the front daily, a minimum of one officer per section. His G-2 said, "A constant flow of information was desired and information gained was information lost unless it was reported promptly." Patton's staff followed their commander's example in the quest for information.<sup>46</sup>

In their constant search for information, Patton fostered the use of tools that gave his staff a theater-wide vision of the battlespace. His headquarters was renowned for its war room, which exceeded that of Supreme Headquarters in the quality of information presented. Patton not only had an Army situation board, but also theater and global situation maps that were constantly updated. The Sixth Cavalry Group was also required to keep a master situation map in their headquarters next to the

Army forward headquarters. This map contained the consolidated picture reported from the information detachments, was the responsibility of the Group operations officer and commander, and available to anyone. Each detachment commander kept a similar map at his own level. Collectively these situation maps worked to form a unified picture of the battlefield, available to any battle commander. Patton fostered the ethic of shared information.<sup>47</sup>

This was built into the work ethic and stability of his staff. Several of his former staff members wrote books after the war that commented on the usefulness of the daily briefings in sharing information. The staff briefings:

led to a most fruitful exchange of ideas... made everyone there aware of what the commander had in mind, what he would do under various circumstances that might arise. The staff was kept up to date with Patton's thinking on a daily basis. Future plans were laid and made known and an intimacy of thinking developed.<sup>48</sup>

Patton's primary staff remained stable throughout the war. Many of them began their service with him when he was commander of the 2d Armored Division during the prewar Protective Mobilization Period.

"Patton men" were marked by extraordinary loyalty to their commander. They melded with his mind, and were given

independent authority to execute in his name. Patton relied on their advice and judgment. He would ask the hard questions, then act immediately on his staff officer's recommendation. This kind of staff unity is unknown today, and may be a missing element in the prescription for successful information operations. Patton fostered a unity of mind and staff work ethic that aggressively sought information gathering and sharing, and then acted on it with combined energy.<sup>49</sup>

#### **IV. Implications for Information Operations**

The mind, too, must be kept mobile.  
One must be able to adjust to changing  
conditions without stopping things to make that  
mental adjustment. *George S. Patton, Jr.*<sup>50</sup>

##### **The Character of Information Operations and Patton's**

**Example** If we compare the salient aspects of information operations to the historic example offered by George S. Patton and his Army Information Service, certain parallels emerge. Current doctrine emphasizes the importance of gaining available information, and using it to create a shared and timely perception of the battlespace to obtain greater force coherence, synchronization of effort, and control of tempo. The framework of information operations is based on shared, real-time awareness of the arrangement of forces in the battlespace. The key is to share

information to achieve a shared perception, or relative common picture.<sup>51</sup>

The means for this relevant common picture to develop is by broadcast information. This is particularly true in the case of intelligence, but also may be applied whenever information applies to the force as a whole. Termed "nonhierarchical information flow," the idea is to get common understanding disseminated as rapidly as possible. This also allows combatant units to coordinate their actions directly, without resort to a vertical control structure.

It was to these ends, a common picture through broadcast information, that the Army Information Service evolved. By means of monitoring the common AIS net within each corps, all participants shared a common basis of information that extended to the army level. Flank units were able to coordinate directly through their respective liaison officers. The analysis offered by the command posts of the 6th Cavalry Group, and their maintenance of situation maps, helped to foster a unified picture of the situation, finally represented in the Third Army war room. Patton desired to foster teamwork and coordination through shared knowledge, and the structure of the AIS largely fulfilled that objective.<sup>52</sup>

Information warfare is designed to give distinct advantages to the commander. These originate from the

shared situational awareness, or relevant common picture. This common basis of understanding is designed to facilitate the rapid communication of the commander's intent and orders. By a common understanding of what the commander wants, plus the shared understanding of the battlespace, the inherent confusion, fog, and friction of battle are to be reduced. Situational awareness by the commander helps him to orchestrate forces to reduce the chaos of the battlefield.<sup>53</sup>

General Patton was known for his exceptional awareness of the situation. His intelligence exceeded that of both the corps beneath him, and the Army Group Commander he served. His use of the AIS allowed him to achieve the stunning advances of the August-September breakout and pursuit, even though his internal command and control structure was taxed, or in some cases, broken. Division commanders like Generals John S. "P" Wood or Robert W. Grow acted independently, by understanding Patton's intent and manner of operations. Patton fostered an atmosphere where he had timely situational knowledge, and where his staff and subordinate commanders acted rapidly as a team, within his intent.

Within information operations, commanders win by shaping their battlespace, by enlarging it at the expense of the enemy. Battlespace marks the limits of the unit's

ability to acquire and engage the enemy. Battlespace is shaped by information, because information facilitates command and control with tempo, the proper speed and timing for the operation. The commander is able to shape battlespace by visualizing it through information, while at the same time blinding or deceiving his opponent. It is incumbent on the battle commander to have the individual qualities necessary to convert data into battlespace vision. Ultimately, battlespace becomes a matter of the commander's ability to use information.<sup>54</sup>

General Patton successfully expanded his battlespace, using innovative means like the Army Information Service. The AIS allowed him to maintain information and control on several widely-flung corps in motion through an innovative directed liaison system. He was able to employ the effects of his ground units in combination with those of his supporting tactical air force. Patton experimented with the use of radio as a tool of the AIS, as well as employing small aircraft for liaison and command and control purposes. He maintained an operational tempo that in many cases his adversary could not match, constantly kept the Germans off-guard, while at the same time demonstrating unusual awareness of the enemy to his front. Examples are his dispatch of the 6th Armored Division to attempt to take Brest before it could be garrisoned, or his anticipation of

the Ardennes counteroffensive in December 1944. Patton devoured battlespace, and achieved advantage over his adversary by doing so.

During information operations, it is important for the commander to be able to tailor information to his needs and command personality. Specific information requests allow the commander to avoid sifting through large quantities of unusable information. Pull-down, nonhierarchical information on demand will be the norm for commanders practicing information warfare.<sup>55</sup>

The leaders of this effort will require the qualities of adaptability, imagination, and intuition. The probable missions will vary so much that no one can wholly anticipate them; therefore, adaptability will be required. In meeting these varied demands, leaders must make imaginative use of many data tools. Where information is incomplete, the battle commander must rely on intuition. This intuition is built upon a basis of professional development and experience. The battle commander will command forward, on the move, at the critical point. His personal presence on the battlefield will inspire confidence and motivation among subordinates.<sup>56</sup>

Patton clearly fulfilled these qualities. He used innovation and imagination to create the AIS. His adaptability in creating this information function from



existing Cavalry assets when no SIAM company was available was rewarded by information tailored to his needs. Patton was known to command in person, to have the intuitive sense to counteract enemy actions before they happened, and to be present at the key point and time in battle. He showed an exceptional ability to grasp and process operational facts. He best illustrates the concept of the human dimension of warfare, and the importance of long term development of battle command qualities.

**Information Processing** According to many students of war, the arrival of the microprocessor has begun a revolution in military affairs. This revolution centers on the ability of computer technology and its off-shoots to handle large volumes of data. This data processing capability is concentrated in the areas of storage, presentation, and communication. Information must still be converted through the process of analysis into a form that the mind can understand and use.

We can expect more information to handle in less time. Along with this information explosion, the number of missions that the United States Army is trying to accomplish has rapidly increased. In some ways, this profusion of missions is fostered by our confidence in technical systems as tools to handle multiple missions. Planning and operations cycles are being compressed. What becomes

critical about information is its presentation, synthesis, and useability; these are inherently processes of the mind.<sup>57</sup>

Information warfare doctrine lacks emphasis on elements of the human information process. Repeated mention is made of the critical nature of quality soldiers and leaders in TRADOC Pamphlet 525-5, **Force XXI Operations**. But there is no explanation how such uniquely qualified soldiers will be educated and developed for their roles in information warfare. The emphasis in this Pamphlet, and in the other official literature having to do with Force XXI is on the technological aspects of the current revolution. The need to develop and focus the human element of information warfare is missing.<sup>58</sup>

**Improvements in the Human Dimension of Information Operations** Patton's personal example of information operations is instructive. He sought and quickly processed current information. The Army Information Service was created for this purpose. The AIS represented all the human elements of battle command. It grew out of Patton's long-nurtured professional mind. His intuition told him that sacrificing a cavalry group for this purpose was essential. The AIS presented rapid, digested information to Patton. The reports grew out of the cognizant minds of junior liaison officers who served as his directed

telescope, and the analytic process of the 6th Cavalry Group personnel who molded those reports into a coherent battlefield picture. The AIS existed to analyze information, so that it became useful for Patton's decisions.

As a battle commander, Patton did not hesitate to make a decision when such information was presented. Patton's battlefield sense grew through years of study of military history, mankind and the psychology of leadership, and the nature of war. He possessed an enlightened and disciplined mind, improved through arduous study, not technological gimmickry.<sup>59</sup>

Patton fostered the same characteristics in his staff, and within the ethic of the Army Information Service. Staff and liaison officers were to be wholly professional, astute and dedicated, and flexible in their execution of demanding duties. The staff was to keep in constant awareness of true battle conditions, and were expected to make recommendations in light of that constant awareness. Their staff cohesiveness was based on professional knowledge, and common processes that became second nature over time. The AIS and Third Army staff marched to the steady rhythm of the flow of information, processed by trained minds, according to their professional ethic of personal awareness and willing scrutiny.

## Conclusion

The battlefield contribution of individual quality soldiers will continue to increase and, indeed, is at the root of knowledge-based operations.<sup>60</sup>

What information warfare through time has been *limited* by are fundamentally human bottlenecks--the concepts of commander's intent, leadership, and human communication. To develop battle commanders and staffs for the future, we must emphasize the importance of educational rigor, as well as command and control technology. We must offer great experience and stability in the human elements of combat, and incorporate these as we seek to capitalize on quantum leaps in technological capability.

The important link between technology and the human dimension in information operations is the intelligent processing and distribution of critical information drawn from a mass of data. The human requirements for perception will remain. No matter the quantity of data, its use will depend on the capability of humans to understand and communicate. We must improve the mental processes of digesting information, and must improve staff synchronization based on common understanding.<sup>61</sup>

The need for competent liaison will probably remain, despite revolutionary technological advances. Liaison fulfills the requirement for digested information and human contact, and is needed when technical command and control

systems break down, as they did in Brittany in World War II (or in Iraq at the end of the Desert Storm ground advance). Liaison functions were what the Theater General Board after World War II recommended be retained as the legacy of the AIS.<sup>62</sup>

Friction exists because of uncertainty. Information operations seek to eliminate uncertainty and its consequent friction. Uncertainty grows from misperceived information just as well as from the absence of information. Elements of uncertainty and fog will persist until we really improve our capability to digest information mentally.<sup>63</sup>

In countering fog and friction, the goal must be to foster the capability to deal with the unpredictable, and build this ability upon an ethic of individual adaptability, flexibility, intuition, and vision. These qualities reside in the human dimension. Information warfare is missing emphasis on the educational and developmental elements of the human equation, so amply demonstrated by General George S. Patton, Jr., and his Third Army Information Service.

## ENDNOTES

<sup>1</sup> Training and Doctrine Command Pamphlet 525-XX, **Concept for Information Operations**, Draft, undated, 25. Hereafter cited as CIO; Field Manual 100-5, **Operations**. (Headquarters, Department of the Army, 14 June 1993), page 1-2.

### <sup>2</sup> **information operations**

continuous combined arms operations that enable, enhance, and protect the commander's decision cycle and execution while influencing an opponent's; operations are accomplished through effective intelligence, command and control, and command and control warfare operations, [and the global information environment (GIE) (that part which influences military operations) {FM 100-6}] supported by all available friendly information systems; battle command information operations are conducted across the full range of military operations (Training and Doctrine Command Pamphlet 525-5, **Force XXI Operations: A Concept for the Evolution of Full-Dimensional Operations for the Strategic Army of the Early Twenty-First Century**, 1 August 1994, Glossary 4. Hereafter cited as 525-5.)

### **battle command**

the art of decision making, leading and motivating soldiers and their organizations into action to accomplish missions: includes visualizing current and future state, then formulating concepts of operations to get from one to another at least cost; also includes assigning missions, prioritizing and allocating resources, selecting the critical time and place to act, and knowing how and when to make adjustments during the fight (525-5, Glossary 1)

<sup>3</sup> The formal components of information operations include intelligence, command and control, and command and control warfare (see definition above). Information operations encompass the interaction of the friendly information system, adversary information system, relevant intelligence, and global information battle space. (CIO, 3-19)

<sup>4</sup> 525-5, page 3-5. CIO, pages 3-15, 3-20.

<sup>5</sup> CIO, pages 3-22, 3-10, 3-11, Field Manual 100-6, Coordinating Draft. **Information Operations**. (Headquarters, Department of the Army, 22 July 1994) pages 3-7 and 3-8. Hereafter cited as 100-6.

<sup>6</sup> 525-5, page 3-8, CIO pages 3-16, quote 2-3.

<sup>7</sup> CIO, 3-14, 3-19 and 3-20.

<sup>8</sup> 525-5, pages 3-3, 3-8, 3-23, 4-1, 4-5.

<sup>9</sup> Masculine references in this discussion of battle command are gender neutral.

<sup>10</sup> CIO, 3-19.

<sup>11</sup> For comments concerning affecting the enemy commander, see 100-6, page 4-5.

<sup>12</sup> CIO, 3-17.

<sup>13</sup> Dean A. Nowowiejski, "FM 100-5 and Battle Command: Toward a New Paradigm of Leader Development," 1994, forthcoming in **Military Review**.

<sup>14</sup> CIO, pages 3-14, 3-11; 100-6 page 3-5.

<sup>15</sup> Gary B. Griffin, **The Directed Telescope: A Traditional Element of Effective Command** (Fort Leavenworth, KS: Combat Studies Institute, July 1991): 19-20.

<sup>16</sup> 525-5, 4-1; Carlo D'Este, **Bitter Victory: The Battle for Sicily, 1943**. (New York: E.P. Dutton, 1988): 138.

<sup>17</sup> Roger H. Nye, **The Patton Mind: The Professional Development of an Extraordinary Leader**, (Garden City Park, NY: Avery, 1993); D'Este 138-139; Robert S. Allen, **Lucky Forward: The History of General George Patton's Third U.S. Army**. (New York: McFadden-Bartell, 1947): 28; Martin Blumenson, **The Patton Papers, 1940-1945**. Volume II. (Boston: Houghton Mifflin, 1974): 838. Hereafter cited as **Papers II**.

<sup>18</sup> Allen, 26; D'Este, 139; Brenton Greene Wallace, **Patton and His Third Army** (Harrisburg, PA: Military Service Publishing Co., 1946. Reprinted by the Battery Press, Nashville, 1981): 205.

<sup>19</sup> Irzyk, "Patton Revisited," 26-29; Wallace, 205, 212; Nye 141.

<sup>20</sup> Oscar W. Koch, **G-2: Intelligence for Patton** (Philadelphia, PA: Whitmore Publishing Company, 1971): 158.

<sup>21</sup> Carl Von Clausewitz, **On War**. Edited and Translated by Michael Howard and Peter Paret. (Princeton, NJ: Princeton University Press, 1976): Book One, Chapter Three, 102; Wallace, 202, 212.

<sup>22</sup> **Papers II**, 458-459; Koch, 53, 56; Wallace, 205, 197; Nye, 154; Allen, 29.

<sup>23</sup> Griffin, 21; George Forty, **Patton's Third Army at War** (London, Arms and Armour Press, 1976): 75; Patton showed a willingness to adapt organizations to technical realities, witness his incorporation of the Tactical Air Force, creation of the Army Information Service, and Army Mobile Striking Forces on at least two occasions. (After Action Report, Third U.S. Army, 1 August 1945-9 May 1945. Volume II. Staff Section Reports. Part 4, G-3. Chapters 1-6, Section H. **"Army Information Service,"** November, 21. Hereafter cited as Army After Action Report, and month; Ellsworth B. Crowley, ed. **The Fighting Sixth: History of the 6th Cavalry Regiment, 1861-1960** (Dallas, Military Publications, 1960): pages unnumbered. Hereafter cited as **The Fighting Sixth**.

<sup>24</sup> Ladislav Farago, **Patton: Ordeal and Triumph** (New York: Ivan Obolensky, Inc., 1963): 485, 551-552; Allen 80; **Papers II**, 424; Wallace, 198, 94.

<sup>25</sup> Allen, 29, 60; Koch, 165; Wallace 205, 197; Personal Letter Carlo D'Este to Dr. Christopher Gabel, Combat Studies Institute, USACGSC, 21 October 1993, copy in possession of author.

<sup>26</sup> Patton quoted in D'Este, 140.

<sup>27</sup> Nye, 99; Russell Weigley, **Eisenhower's Lieutenants: The Campaigns of France and Germany 1944-1945** (Bloomington, IN: Indiana University Press, 1981): 245; **Papers II** 523; Wallace, 58.

<sup>28</sup> Weigley, 242; Nye, 139; on ULTRA, Robert A. Miller, **August 1944: The Campaign for France** (Novato, CA: Presidio Press, 1988): 65-66; George Forty, **Patton's Third Army at War** (London, Arms and Armour Press, 1976): 57; **Papers II**, 503.

<sup>29</sup> The Third Army Information Service was also known as "Patton's Household Cavalry," and is more commonly referred to by the latter title in the few secondary references that mention its use.

<sup>30</sup> Master Plan, Army Information Service. (Headquarters, 6th Cavalry Group, 8 June 1944): 43. Hereafter cited as Master Plan; **The Fighting Sixth**, pages unnumbered; Letter of Instruction, Information Detachment Organization and Operation. (Headquarters, 6th Cavalry Group, 1 July 1944): 4-5. Hereafter cited as LOI for Organization and Operation; quotation from **Papers II**, 424.

<sup>31</sup> Radio monitoring in Phantom was initially modeled on the British J signals monitoring service, Griffin, 24-25.

<sup>32</sup> After Action Report, 6th Cavalry Group, August 1944, 39.

<sup>33</sup> Army After Action, August, 12; After Action Report, 6th Cavalry Group, 39.

<sup>34</sup> LOI for Organization and Operation of the AIS, 4; George P. Winton, "The Liaison Officer--Past, Present, and Future," **Military Review** (July 1944): 43; Operations Division, War Department General Staff. Information Bulletin, Section VI. **"Third Army Information Service."** (Washington, D.C.: Office of the Chief of Staff, 24 May 1945): 8.

<sup>35</sup> Martin Blumenson, **The Duel for France, 1944** (Boston: Houghton Mifflin, 1963): 169, 179; **Operations Division Information Bulletin**, 8; Army After Action, August, 12; Directive, Changes in Assignment, Army Information Service, 21 Aug 1944 (Headquarters, 6th Cavalry Group): 44; Martin Blumenson, **Breakout and Pursuit**. History of the United States Army in the European Theater of Operations. (Washington, D.C.: Historical Division, Department of the Army, 1962): 352-353; Wallace, 58-59.

<sup>36</sup> "Commanders must be provided assess to real-time, battlefield situation assessment, broadcast reporting. Broadcast communications will be most useful to the friendly



force in transmitting weather, location, contamination, intelligence, force status, sensor, and logistics data." CIO, 4-45.

<sup>37</sup> Master Plan, 43; Army After Action, August, 12.

<sup>38</sup> 525-5, 3-4; CIO, 4-45; Army After Action, September, 17.

<sup>39</sup> Farago, 492; Reports of the General Board United States Forces European Theater. Study Number 18. **Army Tactical Information Service**, 1945, 1. Hereafter referred to as General Board; **The Fighting Sixth**, pages unnumbered.

<sup>40</sup> General Board, 6.

<sup>41</sup> Army After Action, August, 12; **Operations Division Information Bulletin**, 8; General Board, Appendix 1, 1-2.

<sup>42</sup> Army After Action, August, 12; Koch, 142.

<sup>43</sup> "Friendly information systems- the system of systems that supports the commander's understanding of the situation; assists in deciding a course of action; enhances ability to direct operations, and affects the adversary information system." CIO, 3-19.

<sup>44</sup> Army After Action, August, 12; Army After Action, September, 17; Farago, 429, 492-493.

<sup>45</sup> George S. Patton, "Letter of Instruction No. 1," Headquarters Third Army, 6 March 1944, reprinted in Third Army After Action Report, Volume II, Staff Section Reports, Annex Number 1, page 1; also Third Army After Action Report, Volume II, Part 4, G3, Section H, "Army Information Service."

<sup>46</sup> Allen, 34; quotation from Koch, 142.

<sup>47</sup> Allen, 47, 49; Nye, 154; LOI for Organization and Operation, 46; Koch, 57;

<sup>48</sup> Koch, 147-148

<sup>49</sup> Allen, 50; Koch, 1-3, 157.

<sup>50</sup> Patton quoted in Koch, 158.

<sup>51</sup> 525-5, 3-3, 3-4, and 3-17.

<sup>52</sup> Master Plan, 43.

<sup>53</sup> 525-5, 3-5, 3-19.

<sup>54</sup> Ibid, 3-7 through 3-9.

<sup>55</sup> Ibid, 3-4, 3-7, 3-8.

<sup>56</sup> Ibid, 3-3 through 3-5, 3-19, 3-23.

<sup>57</sup> Ibid, 3-20 and 4-5.

<sup>58</sup> Ibid, 4-1.

<sup>59</sup> Nye, 156; 525-5, page 3-7.

<sup>60</sup> 525-5, 4-10.

<sup>61</sup> Ibid, 3-6.

<sup>62</sup> **Force XXI Operations** mentions a need for military liaison officers who will translate the needs of our allies in the varied situations that the United States confronts in a regionally polarized world. The human functions of analysis and integration for these future liaison officers

will remain; they only need to be more thoroughly equipped with language and cultural skills.

<sup>63</sup> Spiller in Griffin, *frontispiece*.

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